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OPERATING SUMMARY

Brampton-Chinguacousy

water pollution control plant

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ONTARIO WATER RESOURCES COMMISSION

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Brampton - Chinguacousy :
water pollution control plant.
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ONTARIO WATER RESOURCES COMMISSION
OFFICE OF THE GENERAL MANAGER

Mayor and Members of Council,
Town of Brampton.

Reeve and Members of Council
Township of Chinguacousy.

Gentlemen:

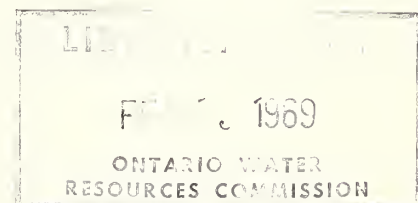
We are happy to present you with the 1967 Operating Summary for the Brampton-Chinguacousy Water Pollution Control Plant, OWRC Project No. 2-0014-58.

Your co-operation with our staff throughout the year has been appreciated. Only with such co-operation can the war against water pollution be waged effectively.

Yours very truly,

A handwritten signature in dark ink, appearing to read "D. S. Caverly", written over the typed name.

D. S. Caverly,
General Manager.





ONTARIO WATER RESOURCES COMMISSION

801 BAY STREET
TORONTO 5

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J. H. H. ROOT, M.P.P.
VICE-CHAIRMAN

TELEPHONE 365-

D. S. CAVERLY
GENERAL MANAGER

W. S. MACDONNELL
COMMISSION SECRETARY

General Manager,
Ontario Water Resources Commission.

Dear Sir:

I am pleased to submit to you the 1967 Operating Summary for the Brampton-Chinguacousy Water Pollution Control Plant, OWRC Project No. 2-0014-58.

The summary reviews progress during the year, outlines operating problems encountered and summarizes in graphs, charts and tables all significant flow and cost data.


Yours very truly,

A handwritten signature in dark ink, reading "D. A. McTavish".

D. A. McTavish, P. Eng.,
Director,
Division of Plant Operations.



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FOREWORD

● This operating summary has been prepared in order to acquaint readers with the management of the project during 1967. The efficiency of the plant's operation is reflected in a general review. Significant financial details are recorded, and technical performance is illustrated by graphs and charts.

The summary should answer two salient questions. Are the project's facilities adequate at this time? And can the project meet future requirements?

The Regional Operations Engineer is primarily responsible for the preparation of the report, and will be pleased to answer any questions regarding it.

Most of the material for the graphs and charts was compiled by the statistics section of the Division of Plant Operations, with the final versions of the graphs being drawn by the draughting section of the Division of Sanitary Engineering. Cost data were provided by the Division of Finance.

It will be evident from the report that all of these groups co-operated with substantial success.

C O N T E N T S

Foreword	1
Title Page	3
'67 Review	5
Project Costs	6
Operating Costs	8
Process Data	10
Conclusions	Inside back cover

BRAMPTON – CHINGUACOUSY
water pollution control plant

operated for

THE TOWN OF BRAMPTON

and

THE TOWNSHIP OF CHINGUACOUSY

by the

ONTARIO WATER RESOURCES COMMISSION

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DIVISION OF PLANT OPERATIONS

DIRECTOR: D. A. McTavish

Assistant Director: C. W. Perry
Regional Supervisor: A. C. Beattie
Operations Engineer: A. Clark

801 Bay Street Toronto 5

'67 REVIEW

The three million gallons per day extension to the plant was phased-in during the year. Adequate flow measuring equipment indicated that flows were higher than previously suspected. Flow measurement is accurate from April, 1967, to the year end.

The total measured flow treated during 1967 was 1388.7 million gallons. Cost of treatment was \$71.02 per million gallons.

The strength of the raw sewage was 184 ppm BOD and 274 ppm SS. Reduction efficiencies were 85.3% and 91.8% for BOD and SS respectively.

These percentages would have been higher had there not been numerous failures of new equipment during the break-in period.

In order that the enlarged plant would be adequately operated, staff was increased and now consists of a superintendent, assistant superintendent, mechanic, mechanic's assistant, four operators and one labourer.

PROJECT COSTS

LONG TERM DEBT TO OWRC

Brampton	\$871,386.00
Chinguacousy	<u>\$106,589.00</u>
Total Capital Cost (Estimated)	<u>\$977,975.00</u>

Debt Retirement Balance at Credit (Sinking Fund) December 31, 1967:

Brampton	\$181,785.68
Chinguacousy	<u>10,306.75</u>
	<u>\$192,092.43</u>

The total cost to the municipalities during 1967 was as follows:

Net Operating

Brampton	\$56,443.67	
Chinguacousy	<u>42,181.86</u>	
		\$ 98,625.53

Debt Retirement

Brampton	\$17,585.00	
Chinguacousy	<u>2,151.00</u>	
		\$ 19,736.00

Reserve

Brampton	\$ 4,121.64	
Chinguacousy	<u>2,558.66</u>	
		\$ 6,680.30

Interest Charged

Brampton	\$49,126.91	
Chinguacousy	<u>6,452.10</u>	
		\$ <u>55,579.01</u>

TOTAL		<u>\$180,620.84</u>
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RESERVE ACCOUNT

Balance at January 1, 1967:

Brampton	\$40,000.03	
Chinguacousy	<u>17,948.44</u>	\$ 57,948.47

Deposited by Municipalities

Brampton	\$ 4,121.64	
Chinguacousy	<u>2,558.66</u>	\$ 6,680.30

Interest Earned

Brampton	\$ 2,357.75	
Chinguacousy	<u>1,073.31</u>	\$ <u>3,431.06</u>
		\$ 68,059.83

Less Expenditures

—

Balance at December 31, 1967		\$ <u><u>68,059.83</u></u>
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TOTALS FOR EACH MUNICIPALITY

Total Cost:	Brampton	\$127,277.22
	Chinguacousy	<u>53,343.62</u>
		<u><u>\$180,620.84</u></u>

MONTHLY OPERATING COSTS

MONTH	TOTAL EXPENDITURE	PAYROLL	CASUAL PAYROLL	FUEL	POWER	CHEMICAL	GENERAL SUPPLIES	EQUIPMENT	REPAIRS & MAINTENANCE	* SUNDRY	WATER
JAN	5,559.93	2,601.40	308.32		522.51	456.75	41.72		117.70	1511.53	
FEB	4,534.15	2,203.01	328.68		506.48	456.75	41.37			997.86	
MARCH	13,089.51	3,908.61	462.32		350.25		302.49	572.60	878.62	5329.96	1284.66
APRIL	6,474.88	1,674.16	423.96	380.97	959.03	1,160.78	193.05	226.80	179.84	1276.29	
MAY	7,334.11	3,168.28	443.64	790.52	891.23	1,109.85	111.89	93.40	110.86	43.80	570.64
JUNE	6,023.74	3,410.27	127.44		864.10		412.52		25.39	1184.02	
JULY	7,885.03	3,161.24	195.84		945.47		211.04	40.33	33.39	3174.58	123.16
AUG	8,217.92	3,362.57	284.20		913.82	1,109.85	128.03		429.98	1989.47	
SEPT	10,143.27	5,066.17	412.43		1,008.85	48.97	134.10		162.58	3123.90	186.27
OCT	11,079.12	3,672.47	70.43	372.61	990.68		433.83		1568.00	3971.00	
NOV	9,888.52	3,430.56	113.18		1,013.36		261.01	41.40	73.36	4709.70	245.95
DEC	8,395.35	3,536.62	88.80	1027.42	1,487.50	1,109.85	458.24	203.69	535.22	(51.99)	
TOTAL	** 98,625.53	39,195.36	3,259.24	2571.52	10,453.28	5,452.80	2729.29	1178.22	4114.94	27260.20	2410.68

* SUNDRY INCLUDES SLUDGE HAULING COSTS WHICH WERE \$21,323.50

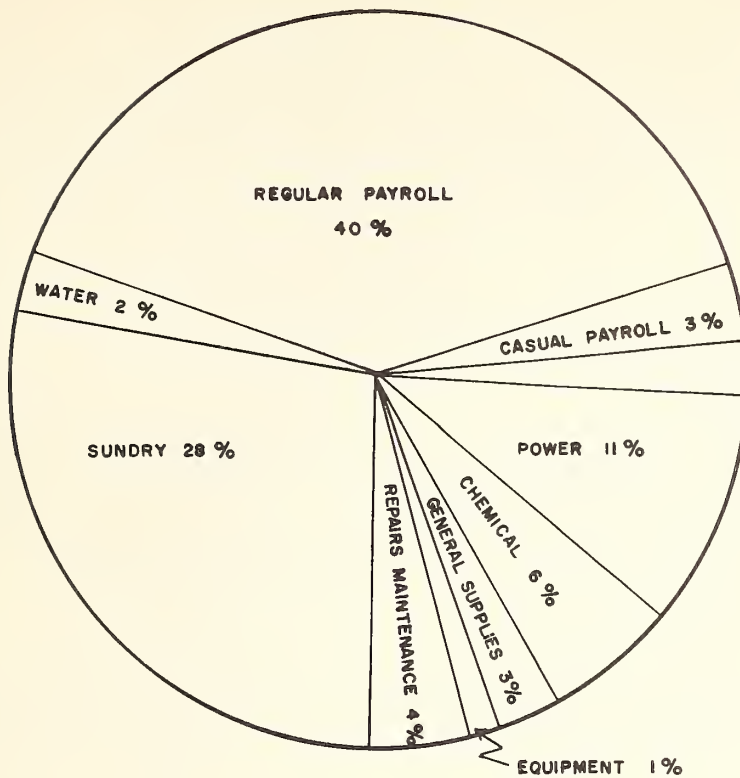
BRACKETS INDICATE CREDIT

** DOES NOT INCLUDE COST OF OPERATING PUMPING STATION, WHICH WAS \$8,324.80

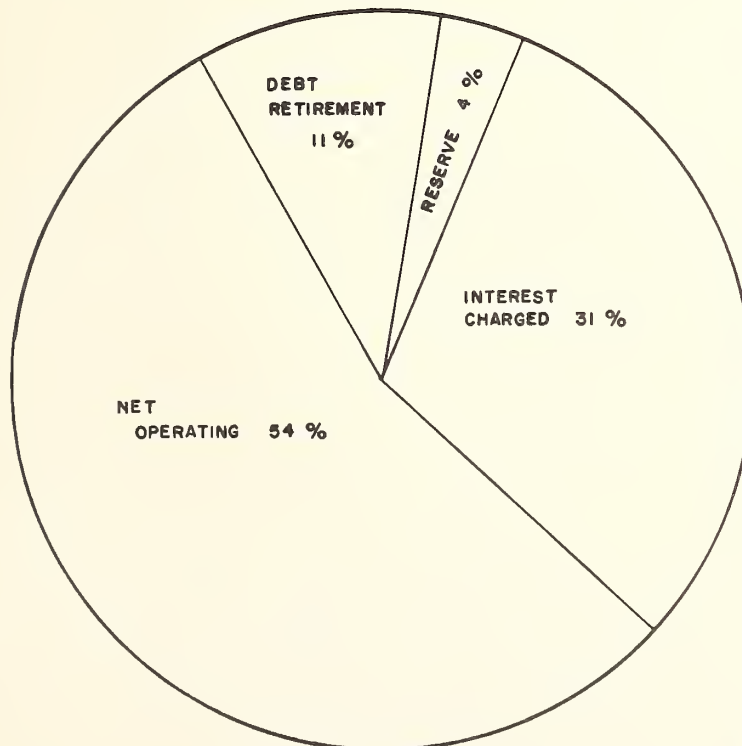
YEARLY OPERATING COSTS

YEAR	M.G. TREATED	TOTAL COST	COST PER MILLION GALLONS	COST PER LB OF BOD REMOVED
1961	345.128	\$25,295.74	\$73.30	3 CENTS
1962	441.847	\$27,441.44	\$62.20	2 CENTS
1963	539.173	\$29,054.11	\$53.90	1 CENT
1964	810.463	\$41,489.00	\$51.19	1 CENT
1965	956.142	\$55,678.76	\$66.27	2 CENTS
1966	956.599	\$75,514.00	\$78.94	2 CENTS
1967	1388.687	\$98,625.53	\$71.02	5 CENTS

1967 OPERATING COSTS



TOTAL ANNUAL COST



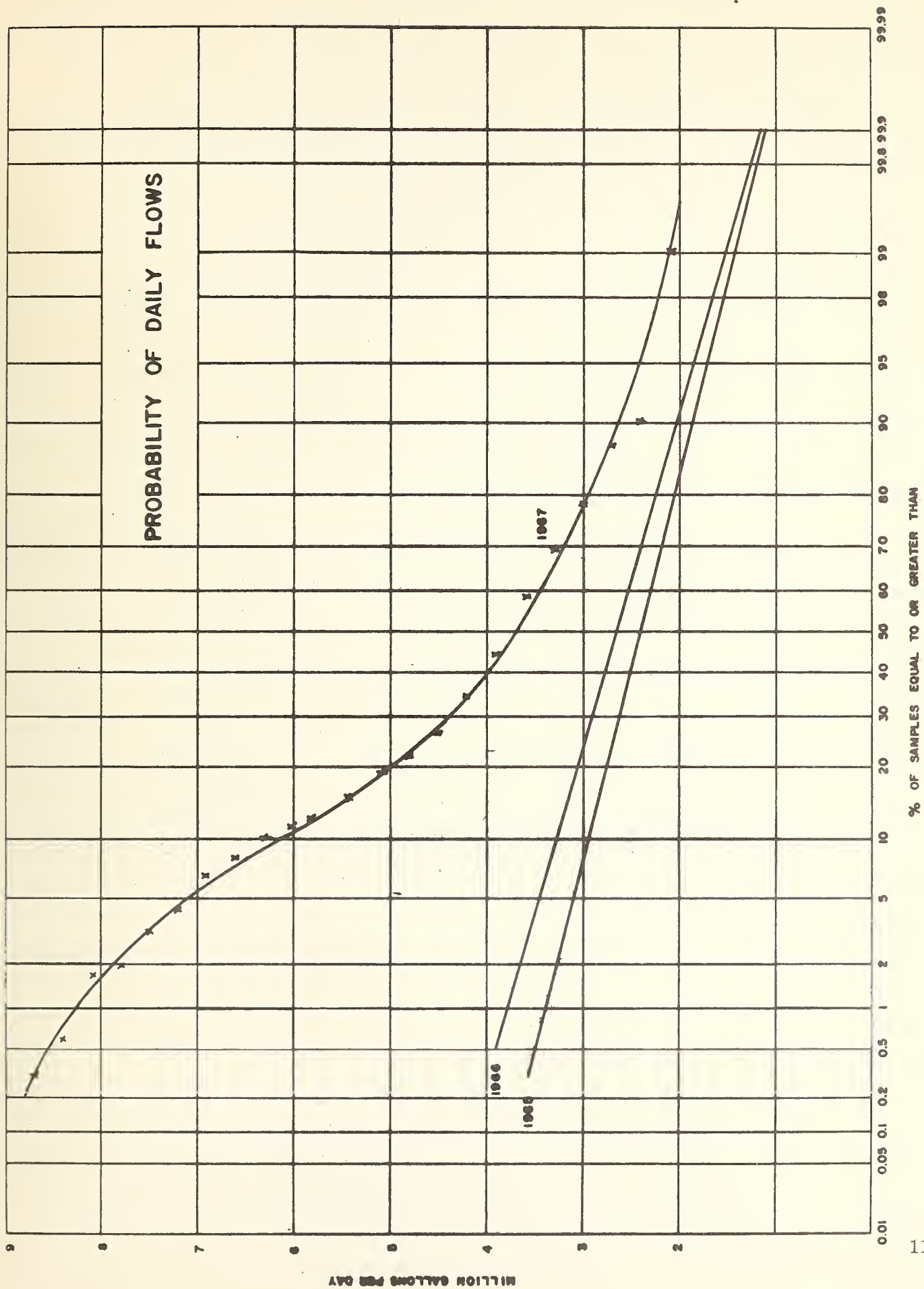
Process Data

The maximum 24 hour flow recorded in 1967 was 8.483 mg. This occurred during spring run off in May 1967.

Instantaneous flows exceeded the meter capacity of 10 mgd.

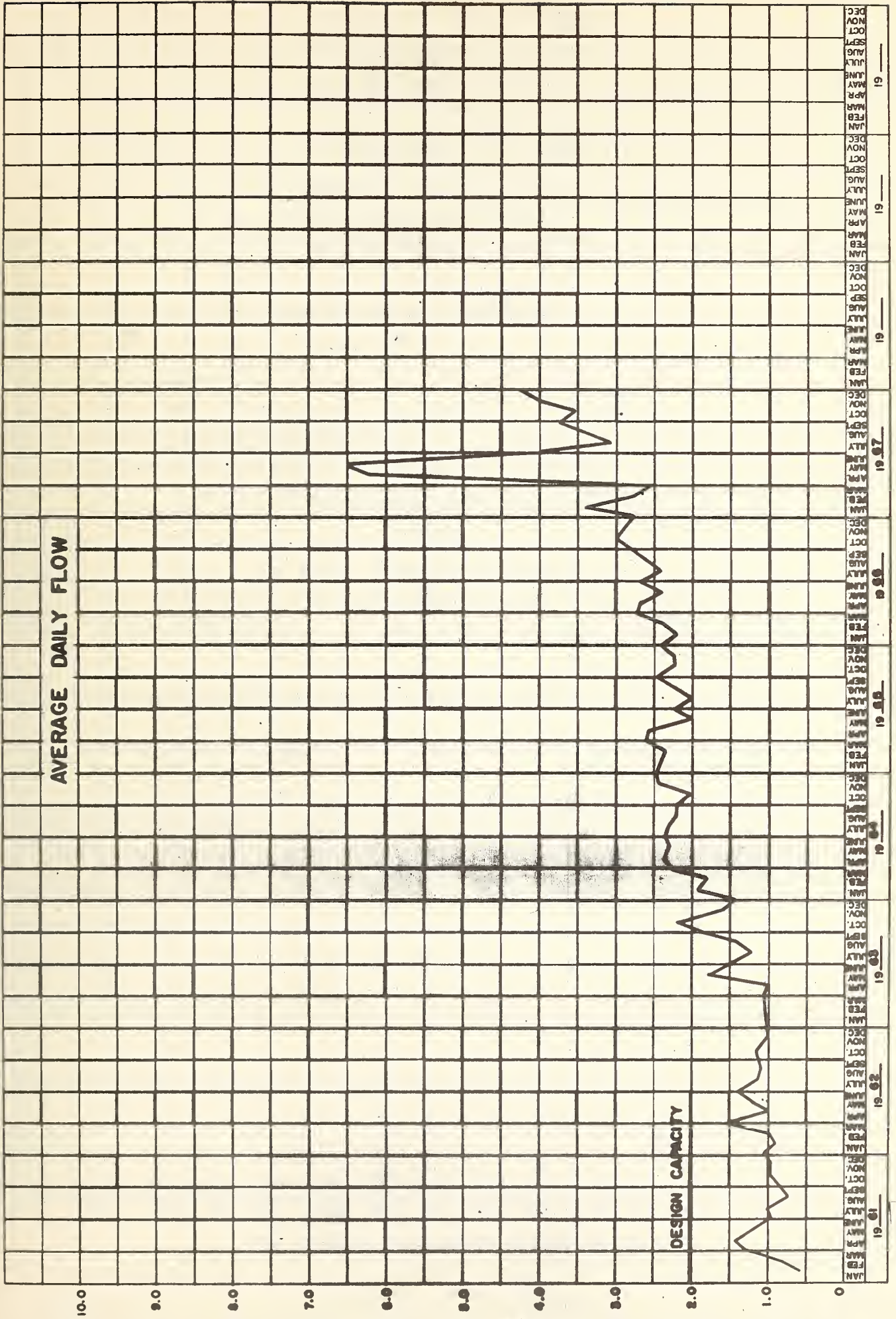
The daily average flow for the year was 3.805 mgd.

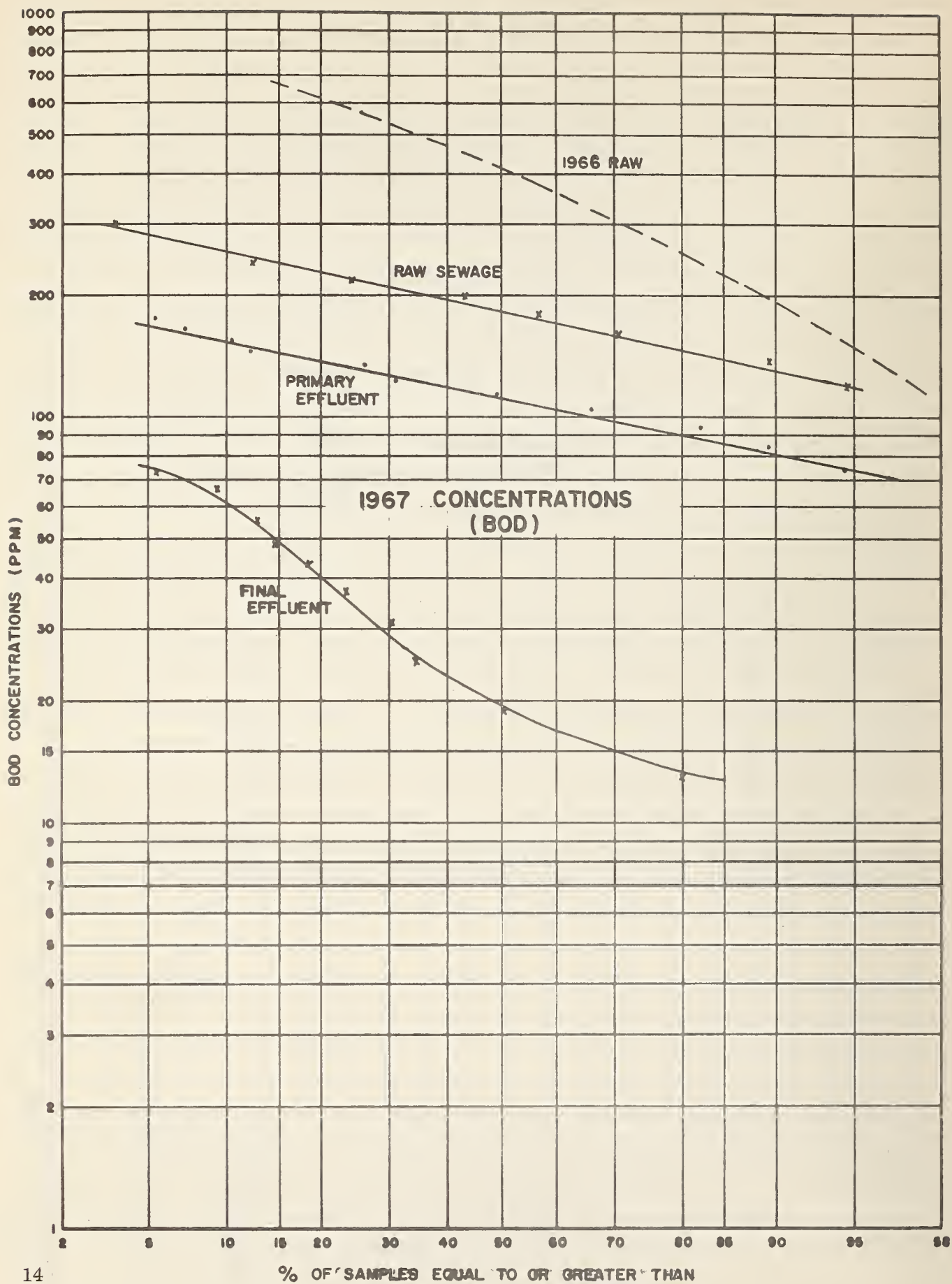
The graph of probability of daily flows shows that the enlarged plant capacity was exceeded 20% of the time.

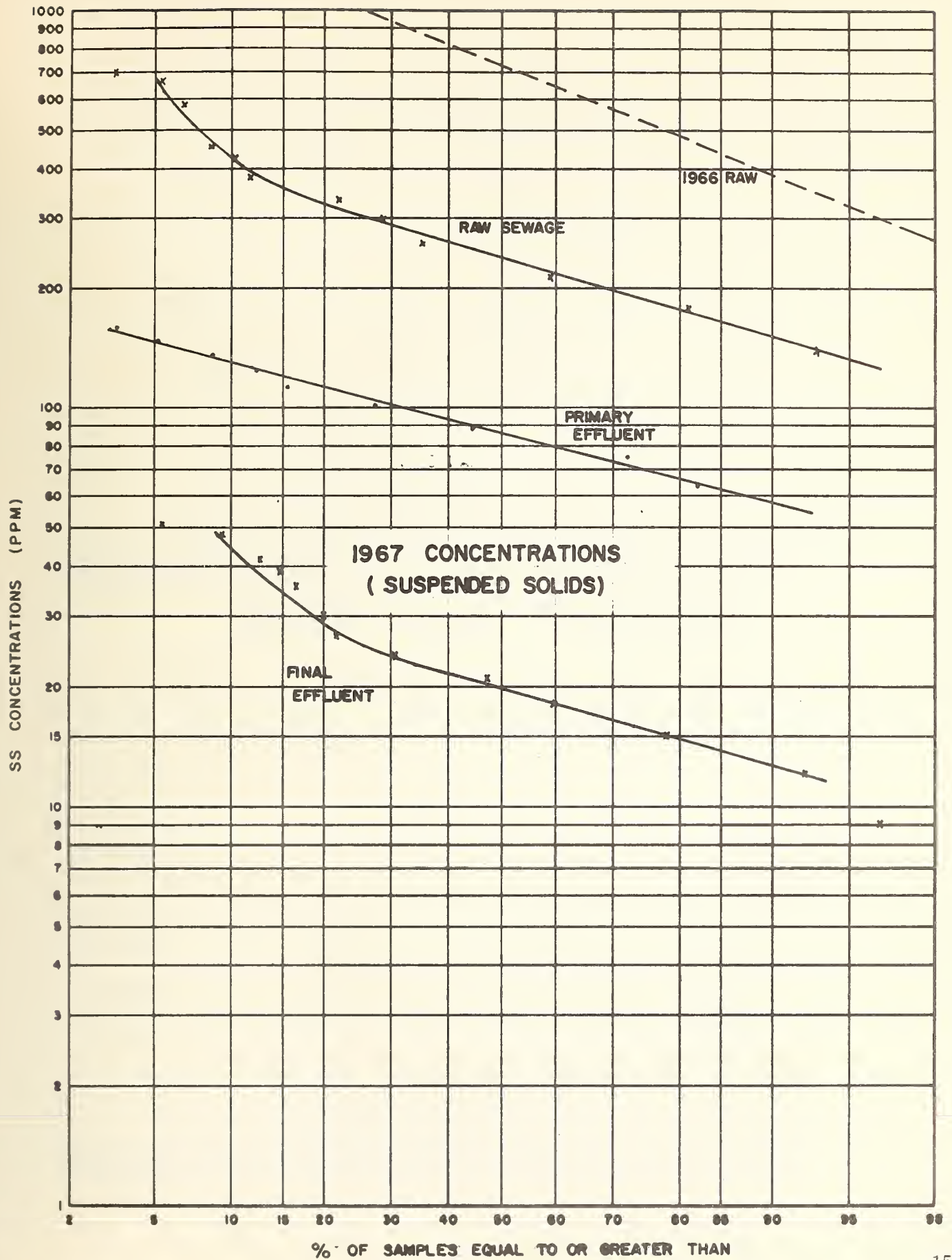


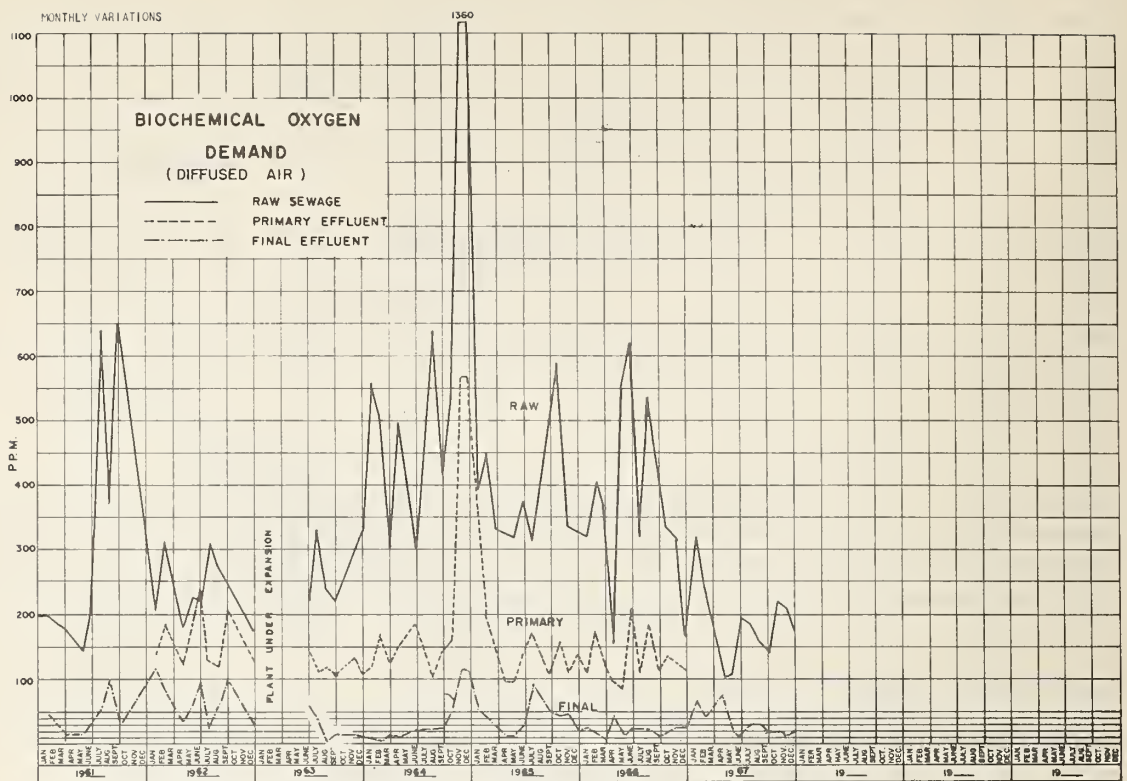
FLOW DATA

Month	Total Flow (MG)	Avg. Daily Flow (MGD)	Max. Daily Flow (MG)	Min Daily Flow (MG)	Max. Rate (MGD)	Min. Rate (MGD)
January	104.544	3.372	4.001	2.281	5.0	.7
February	77.390	2.763	3.871	1.652	5.0	.4
March	77.686	2.506	3.144	1.925	5.0	.7
April	127.728	6.222	8.227	3.877	10.0	.75
May	202.275	6.525	8.483	4.171	9.5	1.0
June	121.925	4.064	5.256	3.018	9.9	.6
July	95.233	3.072	3.683	2.590	7.9	.6
August	107.429	3.465	6.217	2.054	9.0	.5
September	111.835	3.728	6.605	2.193	10.0	.6
October	109.383	3.529	4.666	2.007	9.9	.5
November	121.694	4.056	5.272	3.071	8.1	1.0
December	131.565	4.244	6.207	2.724	10.0	1.0
Total	1388.687	3.805				
Average	115.724					

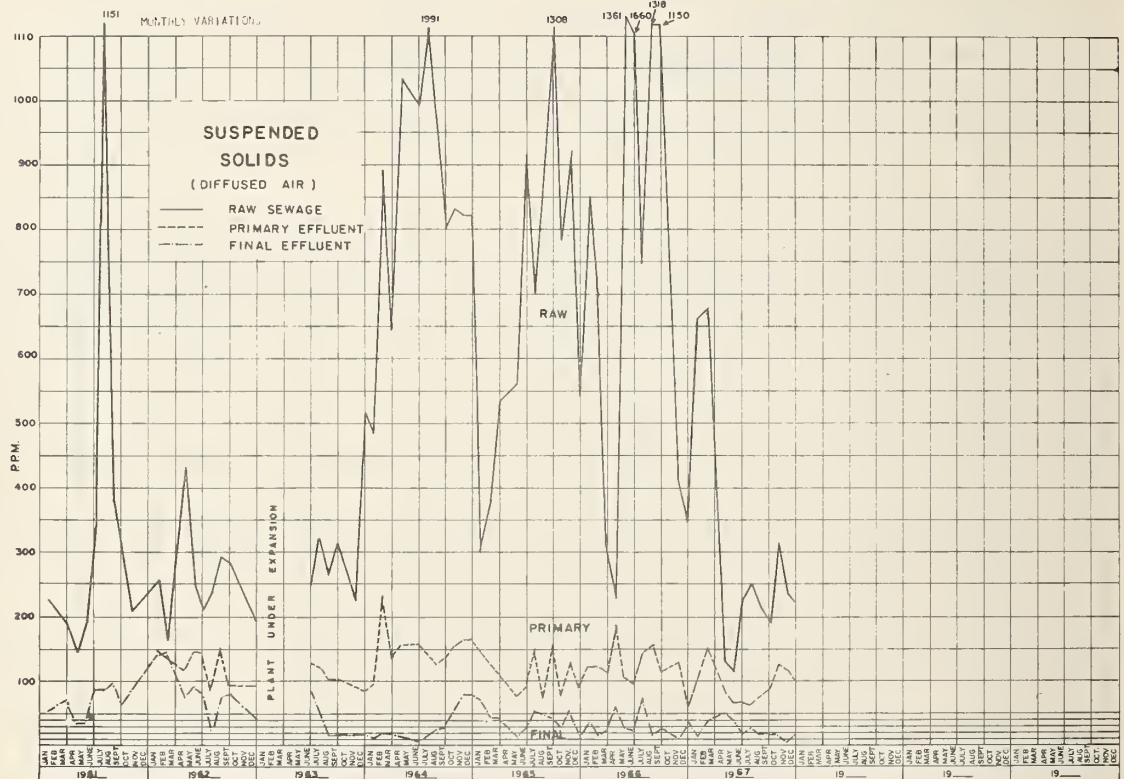


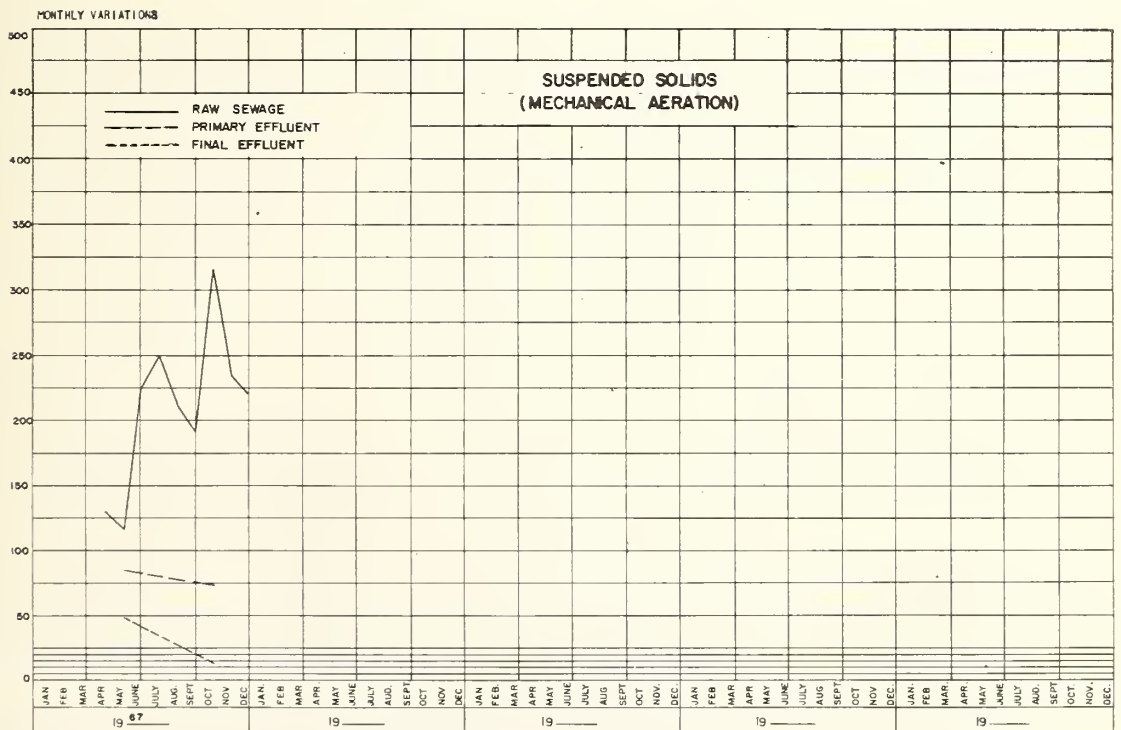
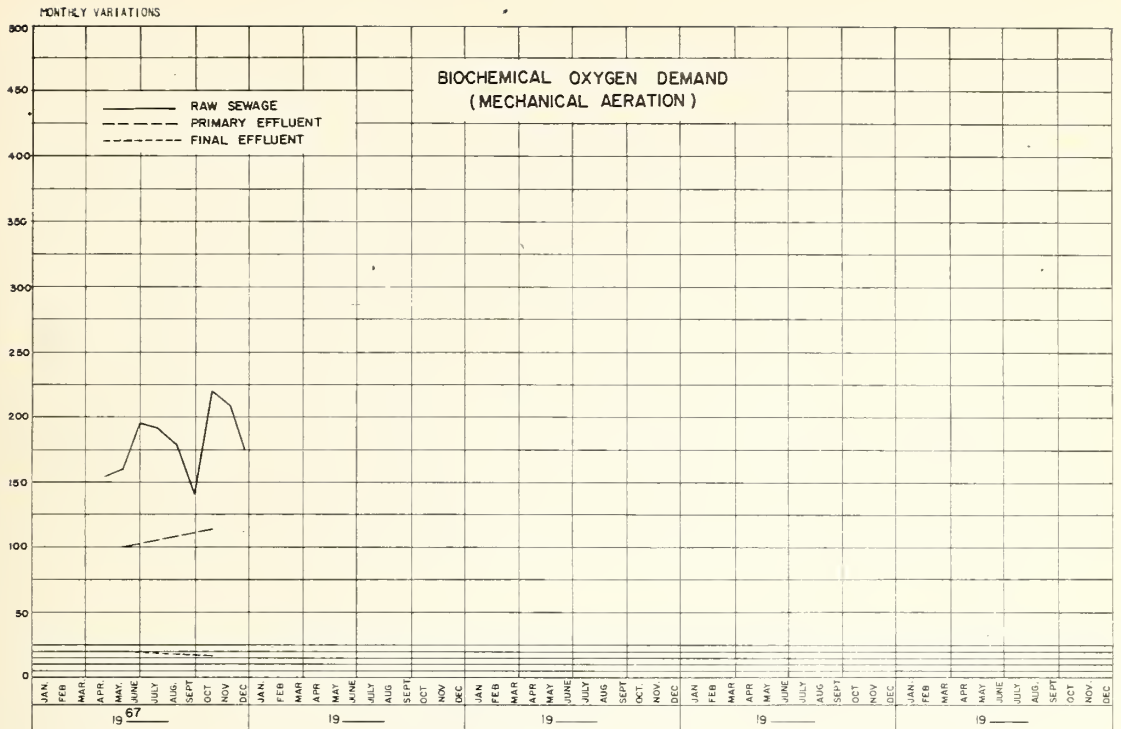


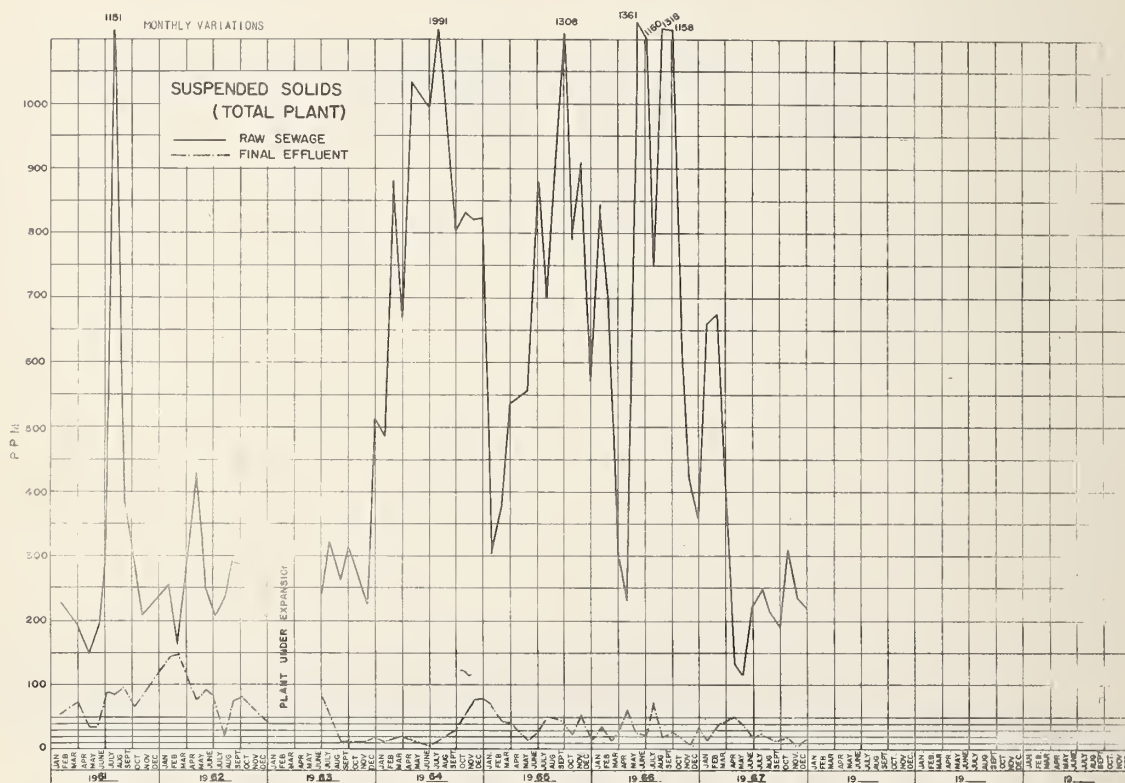
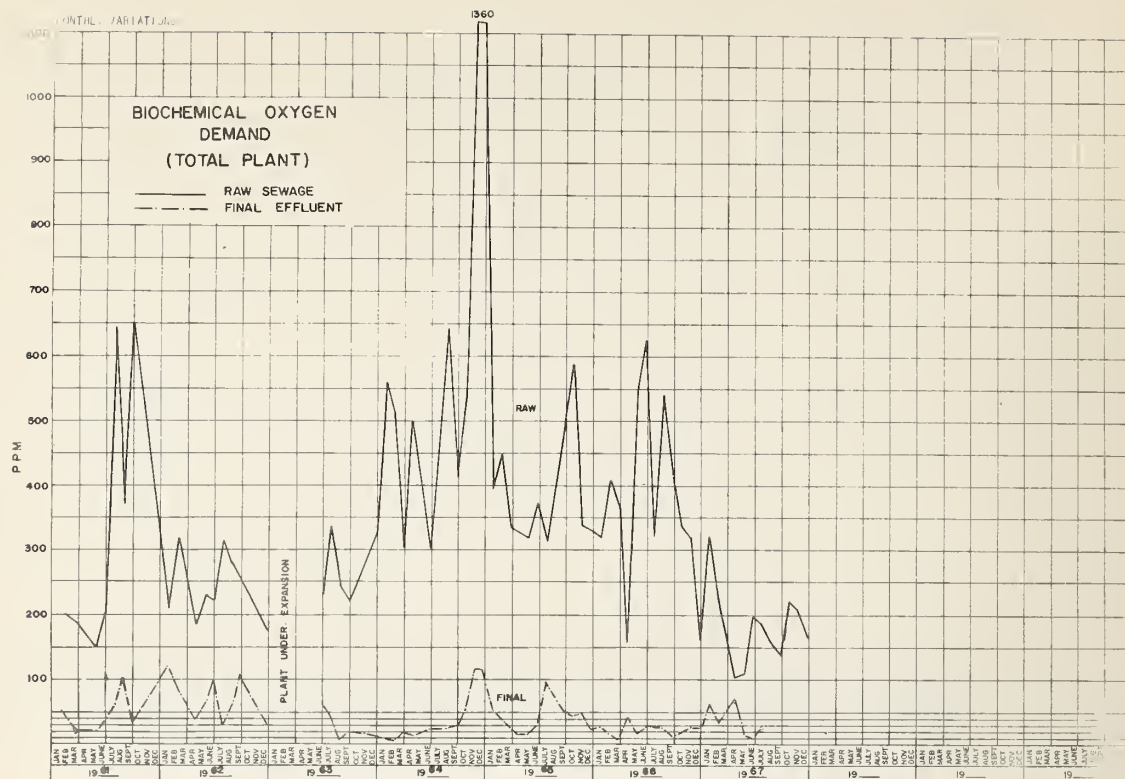




MONTHLY VARIATIONS







GRIT, B.O.D AND S. S. REMOVAL

MONTH	B. O. D.				S. S.				GRIT REMOVAL CU. FT.
	INFLUENT PPM.	EFFLUENT PPM.	% REDUCTION	TONS REMOVED	INFLUENT PPM.	EFFLUENT PPM.	% REDUCTION	TONS REMOVED	
JAN.	320	63	80.3	134.34	662	14	97.9	338.72	513
FEB.	225	33	85.3	74.29	680	38	94.9	248.42	489
MAR.	-	-	-	-	-	-	-	-	513
APR.	104	71	31.7	21.07	130	50	51.1	61.50	243
MAY	108	17	84.2	92.03	116	38	67.2	78.89	189
JUNE	195	6.4	96.7	114.96	223	19	91.5	127.36	216
JULY	186	28	84.9	75.23	252	26	89.7	107.61	234
AUG.	158	25	84.2	71.44	213	20	90.6	103.67	333
SEPT.	139	16	88.5	68.78	192	18	90.6	97.30	288
OCT.	220	15	93.2	112.12	316	16	94.9	164.07	297
NOV.	208	7	96.6	122.30	233	9	96.1	136.30	486
DEC.	165	11	93.3	101.31	220	15	93.2	134.85	459
TOTAL	-	-	-	1090.12	-	-	-	1874.73	4260
AVG.	184	27	85.3	90.84	294	24	91.8	156.23	355

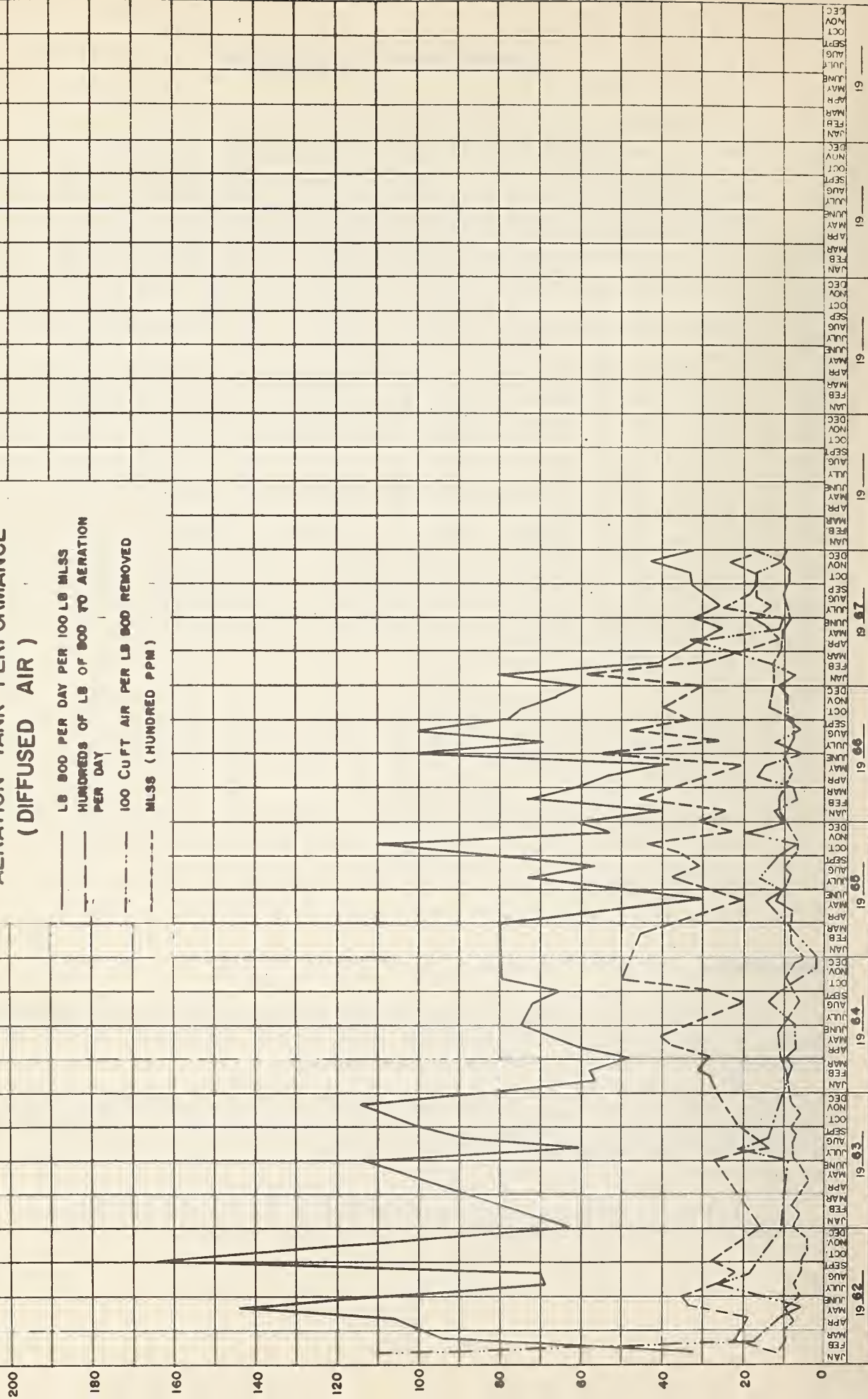
COMMENTS

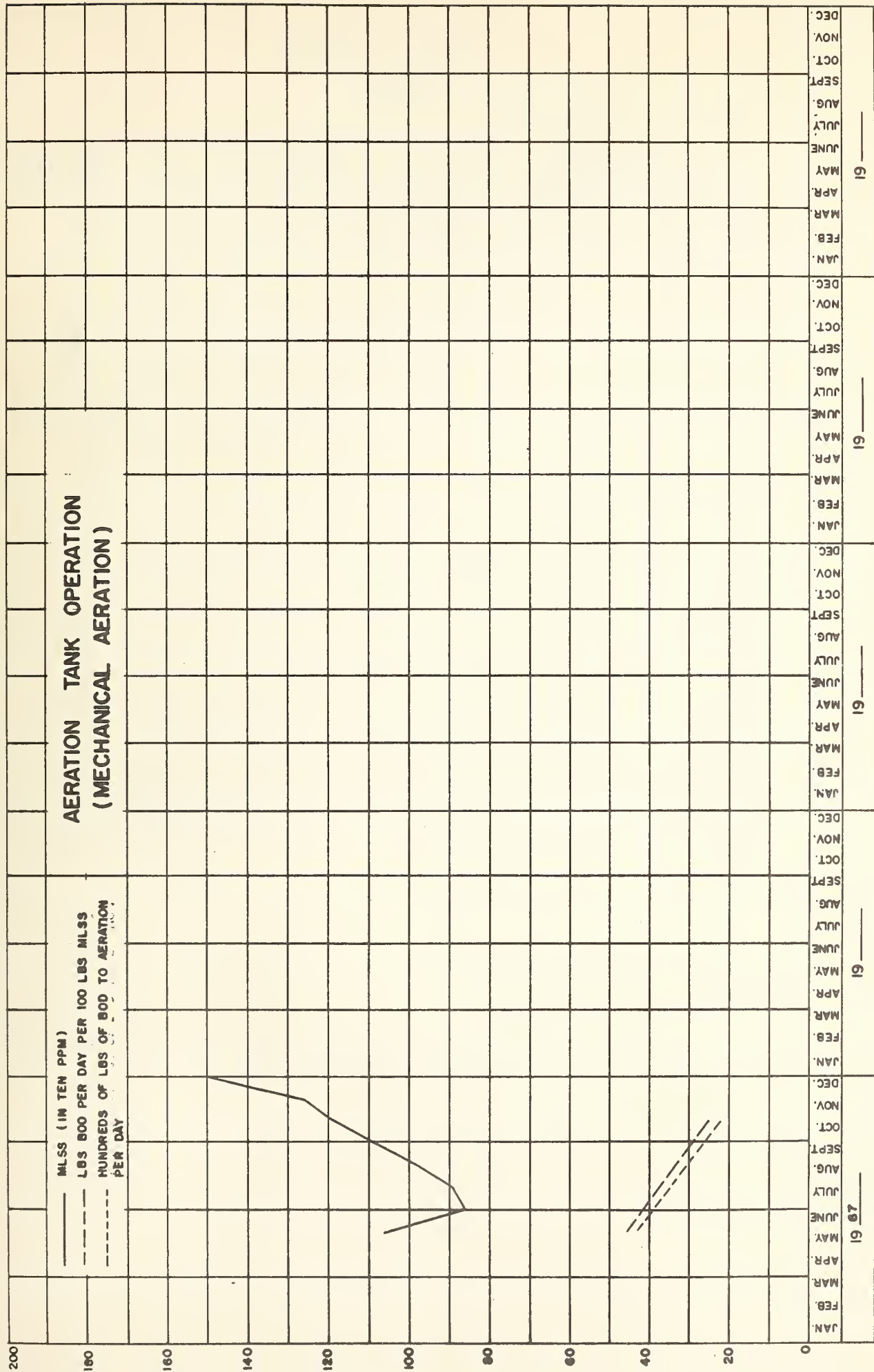
An average loading of 184 ppm 5 day BOD and 294 ppm of SS was experienced in 1967. It can be seen from the table that when the new equipment was not malfunctioning, an effluent of good quality was obtained.

The grit removed was 4260 cu. ft., an average of 3 cu. ft. per million gallons. The frequency of plugged sludge lines would suggest that the grit removal equipment was not removing all the grit.

AERATION TANK PERFORMANCE (DIFFUSED AIR)

----- LB 800 PER DAY PER 100 LB MLSS
----- HUNDREDS OF LB OF SOD TO AERATION
----- PER DAY
----- 100 CUFT AIR PER LB SOD REMOVED
----- MLSS (HUNDRED PPM)





AERATION SECTION

TABLE A

MONTH	PRIM. EFFL. B.O.D. PPM.	ML.SS. PPM.	LBS. BOD. PER 100 LBS. M. L. S. S.	CUBIC FEET AIR PER LB. BOD. REMOVED
JANUARY	175	1287	81	728
FEBRUARY	109	1307	41	1282
MARCH	-	1100	-	-
APRIL	62	1093	31	3282
MAY	70	1016	25	1164
JUNE	105	913	33	1045
JULY	107	932	26	2453
AUGUST	102	1010	30	1917
SEPTEMBER	111	913	33	1680
OCTOBER	132	883	33	1717
NOVEMBER	170	1007	43	1053
DECEMBER	102	937	30	1735
TOTAL	-	-	-	-
AVERAGE	113	1033	37	1641

COMMENTS

When the additional 3 mgd aeration facilities were made available in March, 1967, the aeration sections were run within acceptable limits.

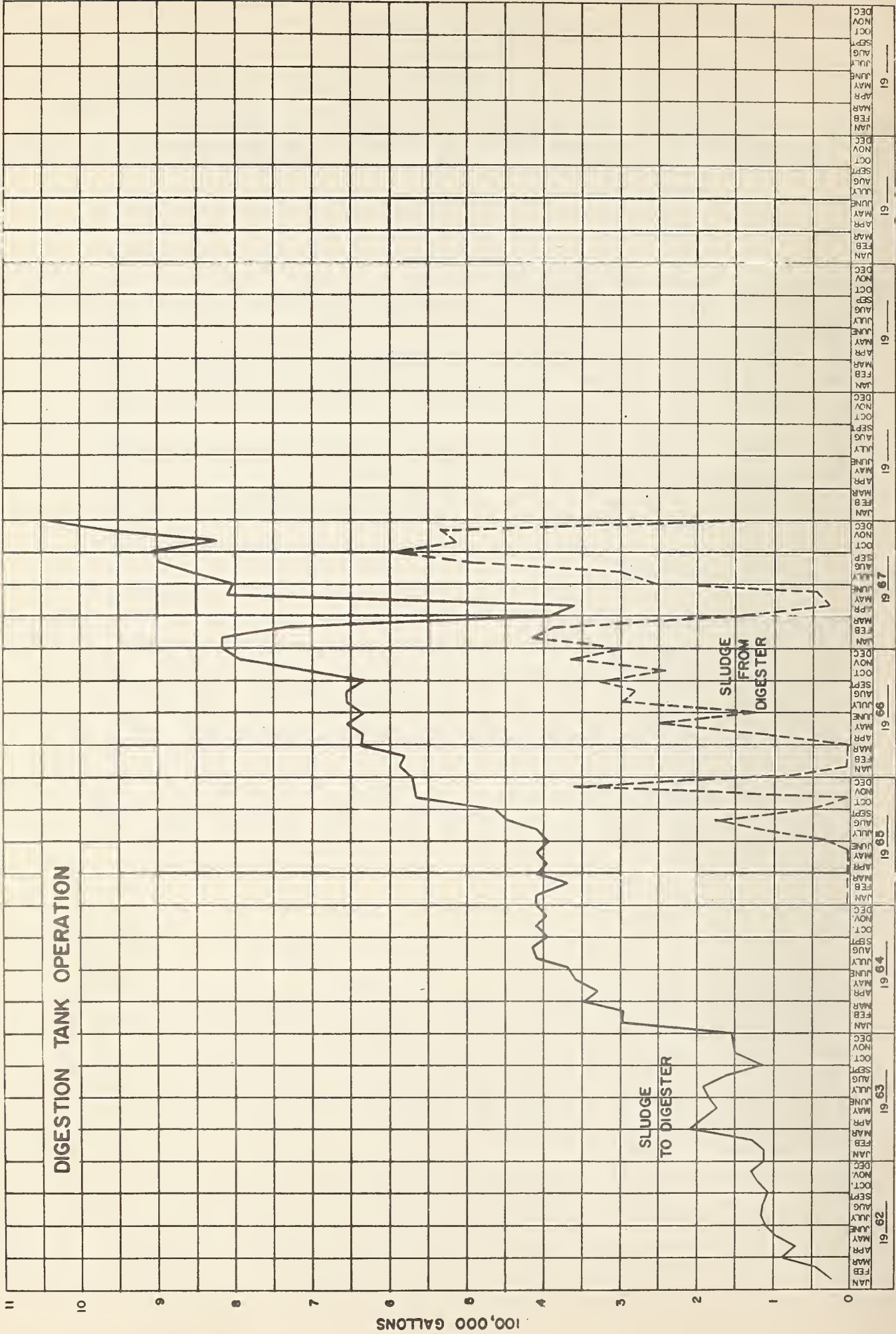
Table A is for the 2 mgd forced air sections.

Table B is for the 3 mgd mechanical aeration sections.

TABLE B

MONTH	PRIM. EFFL B.O.D. PPM.	ML.SS. PPM.	LBS. BOD. PER 100 LBS. M. L. S. S.
JANUARY	-	-	-
FEBRUARY	-	-	-
MARCH	-	-	-
APRIL	-	-	-
MAY	100	1048	42
JUNE	-	860	-
JULY	-	894	-
AUGUST	-	964	-
SEPTEMBER	-	1080	-
OCTOBER	113	1184	22
NOVEMBER	-	1255	-
DECEMBER	-	1490	-
TOTAL	-	-	-
AVERAGE	107	1050	32

DIGESTION TANK OPERATION



DIGESTER OPERATION

MONTH	SLUDGE TO DIGESTERS			SLUDGE FROM DIGESTERS		
	GALLONS	% SOLIDS	% VOL. MAT.	GALLONS	% SOLIDS	% VOL. MAT.
JAN.	818400	6.07		413,652	4.02	
FEB.	728640	8.56		386,223	4.00	
MAR.	395120	-		138,828	-	
APR.	360617	20.00		28,052	1.28	
MAY	810621	2.67		40,519	1.83	
JUNE	805804	3.57	52.27	251,068	2.25	46.67
JULY	855737	2.33	68.10	297,687	-	-
AUG.	897554	-	-	488,996	-	-
SEPT.	909247	2.08	74.20	591,128	-	-
OCT.	823533	-	-	512,903	-	-
NOV.	964244	-	-	53,100	5.70	56.00
DEC.	1047000	5.50	66.00	101,591	6.00	62.00
TOTAL	9416517	-	-	3,303,747	-	-
AVG.	784710	6.35	65.14	275,312	3.58	54.89

COMMENTS

The volume of sludge pumped to the digester was 9,416,517 gallons while the volume removed after digestion was 3,303,747 gallons.

CHLORINATION

MONTH	PLANT FLOW (MG)	POUNDS CHLORINE	DOSAGE RATE (PPM)
JANUARY	104.544	4278	4.09
FEBRUARY	77.390	3338	4.31
MARCH	77.686	4021	5.18
APRIL	127.728	5448	4.27
MAY	202.275	4272	2.11
JUNE	121.925	4811	3.95
JULY	95.233	4733	4.97
AUGUST	107.429	4524	4.21
SEPTEMBER	111.835	4442	3.97
OCTOBER	109.383	4148	3.79
NOVEMBER	121.694	4276	3.51
DECEMBER	131.565	5160	3.92
TOTAL	1388.687	53451	-
AVERAGE	3.805	4454	3.85

COMMENTS

Year round chlorination is practised at this plant. A total of 53,451 lbs. was used during 1967 at an average dosage of 3.85 ppm.

CONCLUSIONS

During 1967 the capacity of the plant was increased from 2 mgd to 5 mgd with the addition of new influent works and a 3 mgd treatment section incorporating mechanical aeration.

Discounting the more than usual new plant difficulties, treatment was greatly improved.

Accurate flow measurement was made available in the plant enlargement and the daily average flow is in the 4.00 mgd range.



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Brampton - Chinguacousy :
water pollution control plant.
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